CLAIMS

1. An anti-crash safe seat in a motor vehicle, comprising: an backrest, a device that regulates a comfortable driving (or comfortable riding) distance between a seat and a steering wheel and a distance between a driver and a instrument panel, and a safety belt, wherein said seat further comprising:

a fixed frame (G) fixedly connected to a floor of a cab of the motor vehicle, the longitudinal direction of the fixed frame being same to that of the motor vehicle, wherein said fixed frame comprising: a front energy-absorbing buffer band (B`), an energy-absorbing plate (5) provided on the top surface thereof, energy-absorbing bearings (H, H`) provided on the front end of the energy-absorbing plate (5), a pin hole (20) provided in one front side of the fixed frame, two rails (G`, G``) parallel each other formed in both back sides of the fixed frame, a iron plate (14) for limiting the distance that the seat can move backwards and for reinforcing the fixed frame, and an energy-absorbing device provided on the back part of the fixed frame (G);

a movable bracket (B) provided movably on the fixed frame (G), the backrest mounted above the movable bracket (B), wherein the top surface of the movable bracket is supported on the energy-absorbing bearings (H, H`), a metal sleeve (17) for positioning the lock pin being provided on the front part on one side of the movable bracket in the position corresponding to said pin hole (20), as well as front and back shaft holes which space with each other and are provided in both sides of the movable bracket in the positions corresponding to the two rails (G`, G``) of the fixed frame;

a front shaft (D) and a back shaft (E) passing through the shaft holds in said movable bracket and positioned in the rails of the fixed frame, inner bearings of the front shaft provided on the front shaft for contacting with the upper surface of the rails, and two inner bearings of the back shaft provided on the back shaft for being supported by the lower surface of the rails; and

a seat control system (C) provided on the front part on one outside of the movable bracket corresponding to the metal sleeve, the control system locking the movable bracket (B) having the backrest to the fixed frame (G) by the lock pin (27) passing through said metal sleeve (17) and pin hole (20), so as to lock the seat; and releasing the seat by making said lock pin out of said pin hole (20).

2. An anti-crash safe seat in a motor vehicle according to claim 1, wherein the seat control system (C) further comprises: an electromagnetic controller (21) whose axial orientation is same to the longitudinal direction of the motor vehicle, a manually operated control hammer (A`) and a metal block (23) for controlling the pin lock, one end in the axial direction of a movable sucker (22) that is sheathed by a reset spring (22`) is connected to said manually operated control hammer (A`), the other end in the axial direction thereof is connected to one end of the metal block (23), and the

other end thereof has a notch (26), one big end of the lock pin (27) inserted into said pin hole (20) and metal sleeve (17) is sheathed by a reset spring (28), and the other small end thereof has a flange (29) for supporting the reset spring, wherein in the condition that the seat is locked, the small end (30`) of the lock pin (27) is sustained against by the metal block (23) by the effects of a bearing (25) and the housing wall of the control system (C), and wherein in the condition that the seat is released, the metal block (23) moves along the longitudinal direction of the motor vehicle relative to the lock pin (27) under the effect of the electromagnetic controller (21) and the inertia of the manually operated control hammer (A`) and of the metal block (23) or under the effect of the manually operated control hammer (A`) directly until the small end of the lock pin entering into the notch (26) in the other end of the metal block, and at the time the lock pin is out from said pin hole (20) by the reset spring (28).

3. An anti-crash safe seat in a motor vehicle according to claim 2, wherein a step is provided on tip of the big end of the lock pin (27) for preventing from being jammed in said pin hole (20) and the metal sleeve (17).

4. An anti-crash safe seat in a motor vehicle according to claim 2, wherein the metal sleeve (17) positioned on the front side of the moveable bracket (B) for mounting the lock pin is a combination of two coaxial steel pipes with different inner diameters, the maximum value of the length of a portion (U) of the metal sleeve (17) that is embedded in the front side of the moveable bracket (B) is equal to the thickness of the side of the moveable bracket (B); the length of a portion (n) of the metal sleeve that has a small diameter is larger than the thickness of the side of the moveable bracket (B), and a diameter of the portion (n) is slightly larger than that of the lock pin (27), while it is smaller than that of the reset spring (28) sheathing on the lock pin; the length of the portion (p) of the metal sleeve (17) that has a big diameter is smaller than the that of the portion (n) having a small diameter; the diameter of the portion (p) of the metal sleeve that has a big diameter is larger than the outer diamcter of the reset spring (28) sheathing on the lock pin, and the reset spring (28) for the lock pin is provided in the portion (p) of the metal sleeve that has a big diameter and abut against the step wall (V)locating the intersection of the portions.

5. An anti-crash safe seat in a motor vehicle according to claim 1, wherein said back shaft further comprises two outer energy-absorbing bearings (3, 3`) provided outside of the rails, the energy-absorbing device comprises energy-absorbing racks provided on both sides of the moveable bracket and energy-absorbing nails (9,9`) contacting with the top portion of the energy-absorbing bearings of the back shaft.

6. An anti-crash safe seat in a motor vehicle according to claim 5, wherein the outer energy-absorbing bearings (3, 3`) of said back shaft are big bearings that endure high pressure, the energy-absorbing bearings (H, H`) are compression resistant, small roller bearings, in which the materials of the inner and outer rings of the small roller bearings are different from those of the

conventional bearings, the width of the outer ring of the roller bearings is wider than that of the conventional bearings, the length of the roller bearings is longer than that of the conventional bearing, the maximum value of the width of the outer ring of the roller bearings is 1.5 times of that of the conventional bearing, and the maximum value of the length of the outer ring of the roller bearings is 1.5 times of that of the conventional bearing.

7. An anti-crash safe seat in a motor vehicle according to claim 1, wherein a middle hole (18`) is further provided between the holes for the front shaft and holes for the back shaft on both sides of the moveable bracket, and a middle shaft (M) with two bearings is provided in the rails of the fixed frame by passing through said middle holes, in order to keep said front and middle shafts in the rails after the back shaft is moved out from the rails.

8. An anti-crash safe seat in a motor vehicle according to claim 1, wherein a closing plate is provided on the back end of the two rails (G`, G``) in the fixed frame (G) to prevent the back shaft from being moved out off the rails.

9. An anti-crash safe seat in a motor vehicle according to claim 5, wherein the outer diameter of the outer energy-absorbing bearings (3, 3`) of the back shaft is larger than that of the coaxial inner bearings.

10. An anti-crash safe seat in a motor vehicle according to claim 8, wherein the energy-absorbing device on the back part of the moveable bracket comprises energy-absorbing racks (60, 60`) on both sides of the moveable bracket, one energy-absorbing plate (66) positioned on the top surface on the back part of the moveable bracket and energy-absorbing nails (62,62`) for connecting the energy-absorbing plate (66) to both sides of the energy-absorbing racks (60, 60`), in which the hardness of the moveable bracket is stronger than that of the energy-absorbing plate (66).

11. An anti-crash safe seat in a motor vehicle according to claim 1, wherein said lock pin (20) has a substantially square shape, and the length of any one of its edges is longer than the diameter of the big end of the lock pin.

12. An anti-crash safe seat in a motor vehicle according to claim 1, wherein the distance between the height of the two rails (G,`G``) parallel each other in the moveable bracket (G) and the diameter of the outer ring of the inner bearings (I, I`) for the front shaft or the inner bearings (11, 11`) for the back shaft moving in the rails is larger than the normalized value that is required by normal mechanical movement, and the maximum value of the distance is 10mm.

13. An anti-crash safe seat in a motor vehicle according to claim 10, wherein the energy-absorbing racks (60, 60`) comprising a thin channel section steel and cover plates (61, 61`) fixed on one end thereof respectively, and one end of the cover plates (61, 61`) has a notch (67, 67`) for the movement of the energy-absorbing nails (62, 62`) respectively.

14. An anti-crash safe seat in a motor vehicle according to claim 1, wherein the seat control system (C) further comprises: a manually operated control hammer (69) and a metal block (68) for

controlling the lock pin, a reset spring (70) sheathing the hammer is resetting the metal block to its original position, one end of said hammer is connected to one end of said metal block, the other end of the metal block has a notch (71), one big end of the lock pin (27) inserted into said pin hole (20) and metal sleeve (17) is sheathed by a reset spring (28), and the other small end thereof has a flange (29) for supporting the reset spring, wherein in the condition that the seat is locked, the small end (30') of the lock pin (27) is sustained against by the metal block (68) by the effects of a bearing (25) and the housing wall of the control system (C), and wherein in the condition that the seat is released, the metal block (23) moves along the longitudinal direction of the motor vehicle relative to the lock pin (27) under the inertia effect of the manually operated control hammer (69) and the metal block (68) until the small end of the lock pin entering into the notch (71) in the other end of the metal block, and at the time the lock pin is move out from said pin hole (20) by the reset spring (28).